

Export Owners Manual

(Controller CS6230-EX and CS6200-EX)

CE

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P R E M I U M LEISURE EXPORT PRODUCTS

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Part No. 7617

Introduction

Your choice of a spa indicates that you are devoted to excellence. The manufacturer appreciates your patronage and take pride in the tradition of quality spas that our company represents.

In order to get the most out of your spa, we strongly suggest that you take time to read through this manual before you hook up and operate your spa. This will acquaint you with the operating features, hook up procedures, maintenance, safety procedures, ensuring an enjoyable experience right from the start. Manufacturer has tried to anticipate all of your needs and desires; however, if you need any addition information, feel free to call your authorized dealer.

WARNING!! This manual was written to ensure the proper use and installation of these spas. Any modifications to the procedures outlined in this manual may result in your warranty being void. Please take the time to read this manual to avoid any unnecessary problems with your brand new spa and equipment.

THIS MANUAL AND ITS CONTENTS ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALTHOUGH MANUFACTURER HAS PREPARED THIS MANUAL AS ACCURATE AND PRECISE AS POSSIBLE, WE WILL NOT BE LIABLE FOR LOSS, INJURY OR DAMAGES CAUSED BY IMPROPER INSTALLATION OR USE OR SPA (IMPROPER OR OTHERWISE).

Spa Information

Date Purchased:_____

Date Installed:_____

Dealer Name:_____

Dealer Address: _____

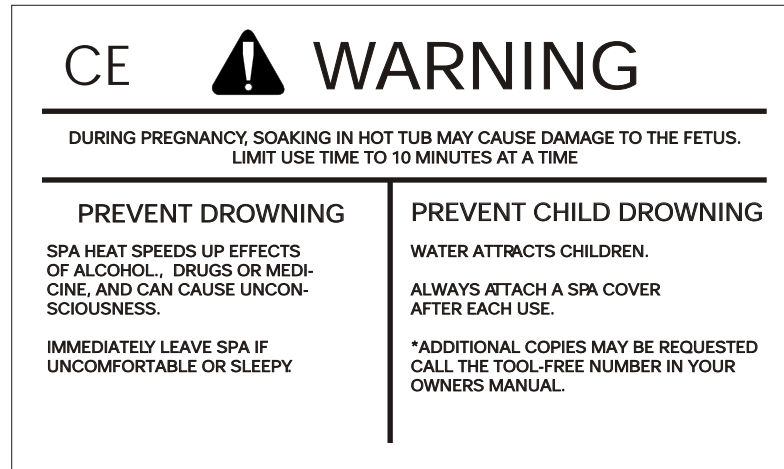
Dealer Telephone: _____

Spa Model and Serial Number: _____

IMPORTANT SAFETY INSTRUCTIONS

When installing your spa and using this equipment, basic safety precautions should always be followed, to include the following:

- **READ AND FOLLOW ALL INSTRUCTIONS!** The following instructions are required by UL 1583 standard to be printed as a condition of their listing this product. They contain important safety information we strongly urge you to read and apply.
- **DANGER - TO REDUCE THE RISK OF INJURY:** Do not permit children to use spa unless they are closely supervised at all times.



WARNING SIGN MUST BE POSTED

The WARNING sign (RED) above is packed with your new Hydrosipa Spa. This sign must be posted in a prominent place in close proximity to the spa installation site immediately upon completion of spa installation.

- **WARNING SIGN** - It is extremely important that this sign be permanently placed in clear view of any persons using the spa. Occasional spa users may not be aware of some of the dangers hot water poses to pregnant women, small children, and people under the influence of alcohol. If you did not receive a warning sign or your sign has become damaged, please contact your spa dealer or manufacturer.
- **DANGER** - A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4mm²) solid copper conductor between unit and any metal equipment, metal inclosures of electrical equipment, metal water pipe, or conduit, if that item is located within 5 feet (1.5m) of the unit.
- **DANGER - RISK OF ACCIDENTAL DROWNING:** Extreme Caution must be exercised at all times, to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use spa unless they are supervised at all times. Cover spa and use safety locks to prevent accidents.
- **DANGER - TO REDUCE THE RISK OF INJURY:** The suction fittings in the spa are sized to match the specific water flow created by the pump/pumps. Should the need arise to replace the suction fittings or the pump/pumps, be sure that the flow rates are compatible.
- **DANGER - RISK OF ELECTRICAL SHOCK:** Install at least 5 feet (1.5m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (1.5m) of metal surfaces if each metal surface is permanently connected by a minimum No. 8 AWG (8.4mm²) solid copper conductor to the wire connector on the terminal box that is proved for this purpose. Do not permit any electrical appliance, such as a light, telephone, radio or television within 5 feet (1.5m) of the spa, unless factory installed.
- Position spa to provide proper drainage of the compartment for electrical components.
- For floor recessed spas, install to permit access for servicing from above or below floor.
- **NEVER USE AN EXTENSION CORD!**
- Consideration should be taken for water splash out. Water can ruin wood floors and some finishes.
- **DO NOT** use a wall switch, ground fault circuit interrupter, circuit breaker, fuse, or plugging and unplugging the spa as a means of turning on or off your spa for normal everyday use.
- **DO NOT** block access door.
- Set the spa on a firm level (flat) surface. **DO NOT** set spa on blocks as structural damage may occur to spa.
- **WARNING** - To reduce the risk of injury. The water in a spa should never exceed 40° C (104° F). Water temperatures between 38° C (100° F) and 40° C (104° F) are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes.

IMPORTANT SAFETY INSTRUCTIONS

- Since excessive water temperatures have a high potential for causing fetal damage during early pregnancy, pregnant or possible pregnant women should limit water temperatures to 38°. Before entering a spa, the user should test the water temperature with an accurate thermometer. The tolerances of water temperature-regulating devices vary. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Persons suffering from obesity, medical history or heart disease, low/high blood pressure, circulatory system problems, or diabetes, should consult a physician before using a spa. Persons using medication should consult a physician before using a spa because some medications induce drowsiness while others may affect heart rate, blood pressure and circulation.

HYPERTHERMIA

Prolonged immersion in hot water may induce hyperthermia. A description of the causes, symptoms, and effects of hyperthermia are as follows:

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6° F (37° C). The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include.

- Unawareness of impending hazard;
- Failure to perceive heat;
- Failure to recognize the need to exit spa;
- Physical inability to exit spa;
- Fetal damage in pregnant women; and
- Unconsciousness and danger of drowning.

CHOOSING A LOCATION

IMPORTANT: Because of the combined weight of the spa, water and users, it is extremely important that the base upon which the spa rests be smooth, flat, level and capable of uniformly supporting this weight, without shifting or settling, for the entire time the spa is in place. If the spa is placed on a surface which does not meet these requirements, damage to the skirt and/or the spa shell may result. Damage caused by improper support is not covered under warranty. It is the responsibility of the spa owner to assure the integrity of the support at all times. It is strongly recommended that a qualified licenced contractor prepare foundation for your spa.

Manufacturer recommends a poured, reinforced concrete slab with a minimum thickness of 4 inches (10cm). Wood decking is also acceptable provided it is constructed so that it meets the requirements outlined above. The spa must be installed in such a manner as to provide drainage away from the spa. Placing the spa in a depression without provisions for proper drainage could allow rain, overflow and other casual water to flood the equipment and create a wet deck. Install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstructions which would prevent removal of the cabinet side panels and access to the jets components, especially on the side with the equipment bay doors.

Outdoor Location

In selecting the ideal outdoor location for your spa, we suggest that you take into consideration:

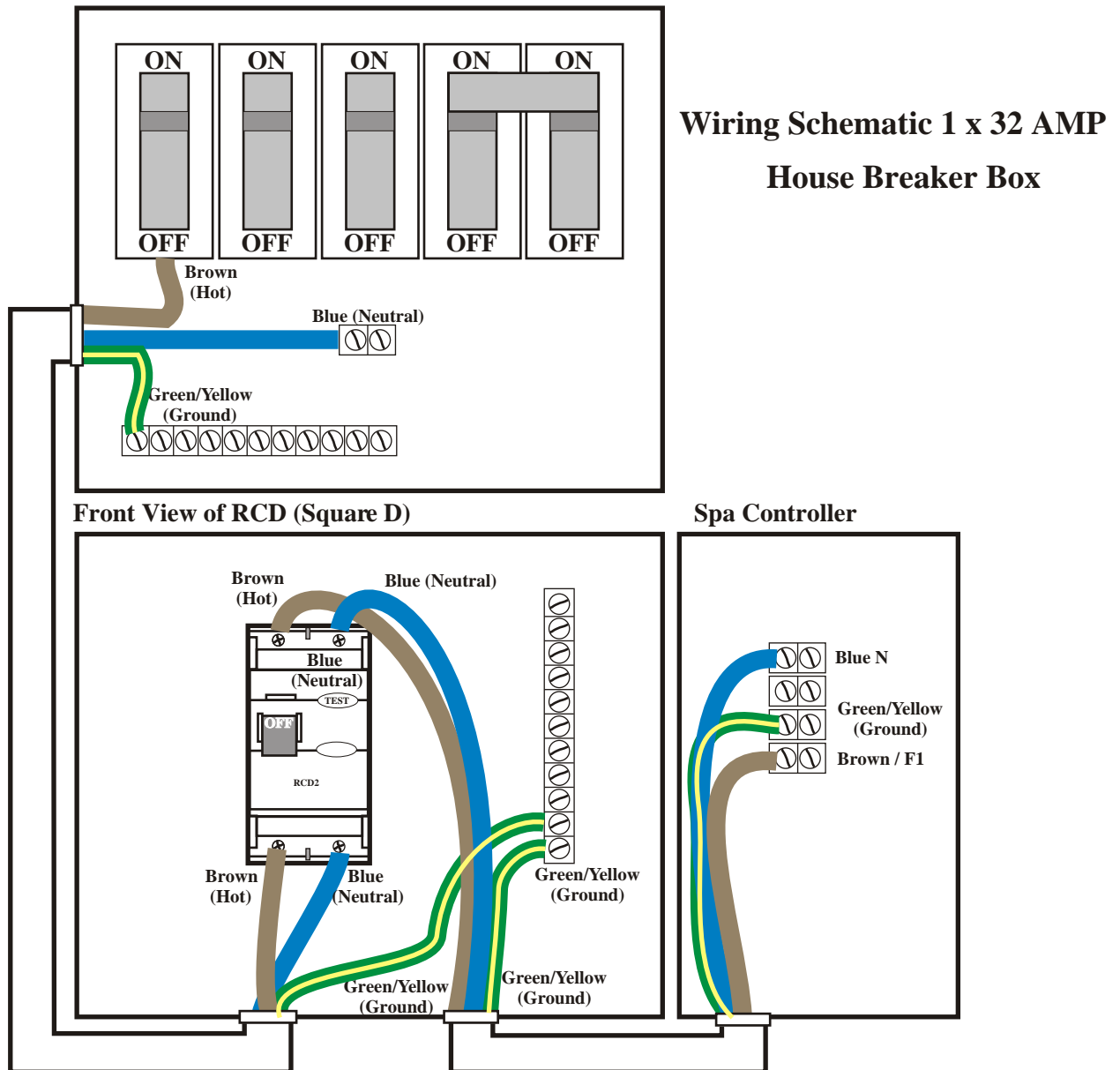
1. The proximity to changing area and shelter (especially in colder weather conditions).
2. The pathway to and from the spa (free of debris, dirt, leaves as not to be tracked into spa).
3. The closeness to trees and shrubbery (leaves and birds could create extra work).
4. A sheltered environment (less wind, weather exposure resulting in lowered operation and maintenance costs).
5. The overall enhancement of your environment. It is preferable not to place the spa under an unguttered roof overhang since run-off water will shorten the life expectancy of spa cover.

Indoor Location

Be sure your spa will fit into the space you have chosen. Proper access into the home is needed to move the spa into place. Ventilation may be needed because of the humidity from the spa. In most cases, a spa cover is sufficient. Be sure to check the load carrying capabilities of the floor you will be installing your spa, as most homes meet the requirement of 80lbs per square foot (manufacturer not responsible). Insure you have proper drainage in the event of a leak or water spill due to over load of spa with people causing water damage (manufacturer not responsible). Incase of maintenance problems, leave enough room around the spa to work. Choose proper flooring area for spa.

POWER REQUIREMENTS

MODEL	VOLTS	AMP	FREQUENCY	CONNECTION	APPLICATION
610	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
710	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
810	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
910	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
1010	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
ER11	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
OV10	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
Sq09	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX



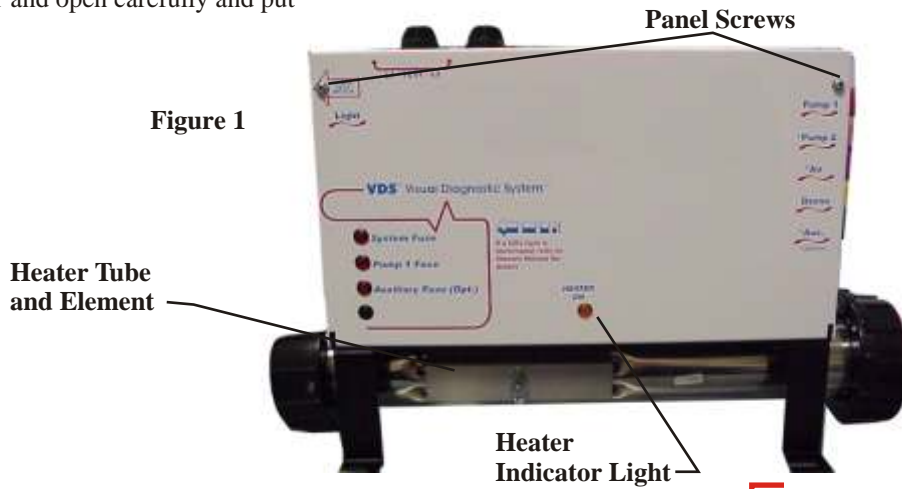
MODEL	VOLTS	AMP	FREQUENCY	CONNECTION	APPLICATION
Z20	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
Z30	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
Z40	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
Z50	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX
Z60	220 - 240	1x32	50	3 wire 4 Sq Mm	CS6230-EX

CONTROL SYSTEM DIAGRAM

CS6230-EX Control Equipment Pack System Wiring Directions

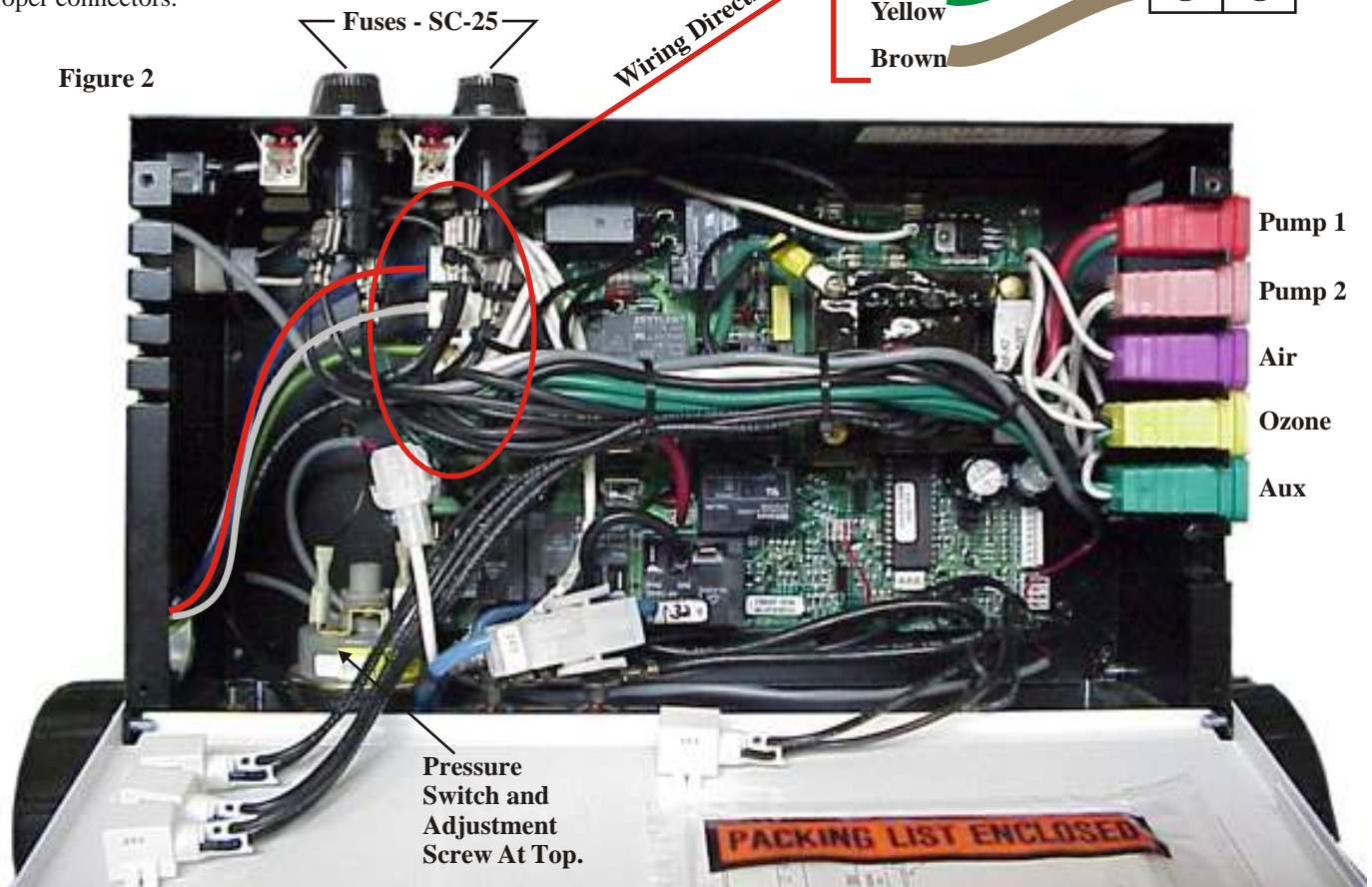
Remove 2 screws from cover panel figure 1 and open carefully and put aside.

Figure 1



Route the electrical wires through conduit of the equipment pack and attach wires as shown in figure 2 to proper connectors.

Figure 2



Connector

Blue

Green
Yellow

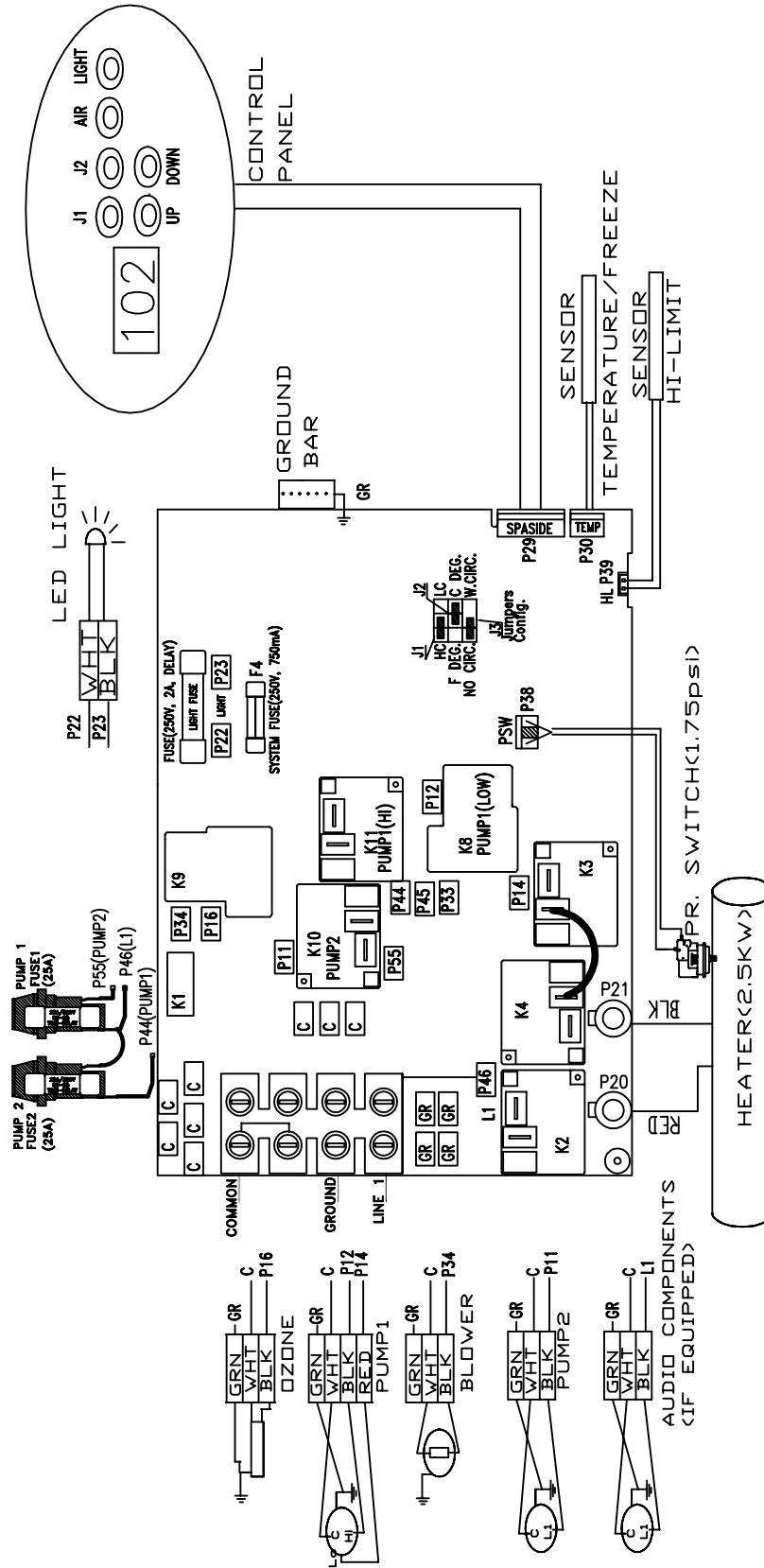
Brown

WARNING: FILL THE SPA WITH WATER BEFORE TURNING ON THE POWER.

Once your spa has been filled with water, turn it on and test all of the circuit breakers.

WIRING DIAGRAM

WIRING DIAGRAM WITH CS-6230-VDS-EX CONTROLLER
PERMANENTLY CONNECTED 230VAC, 50HZ, 1X32A



PERMANENTLY CONNECTED 240VAC, 1X32A, 50HZ
CONNECT POWER TO L1, C, GR
(USE COPPER WIRE MIN. 3X45g. mm)
FOR POSITION OF CIRCUIT BOARD JUMPERS J1,J2,J3 SEE JUMPER CONFIGURATION

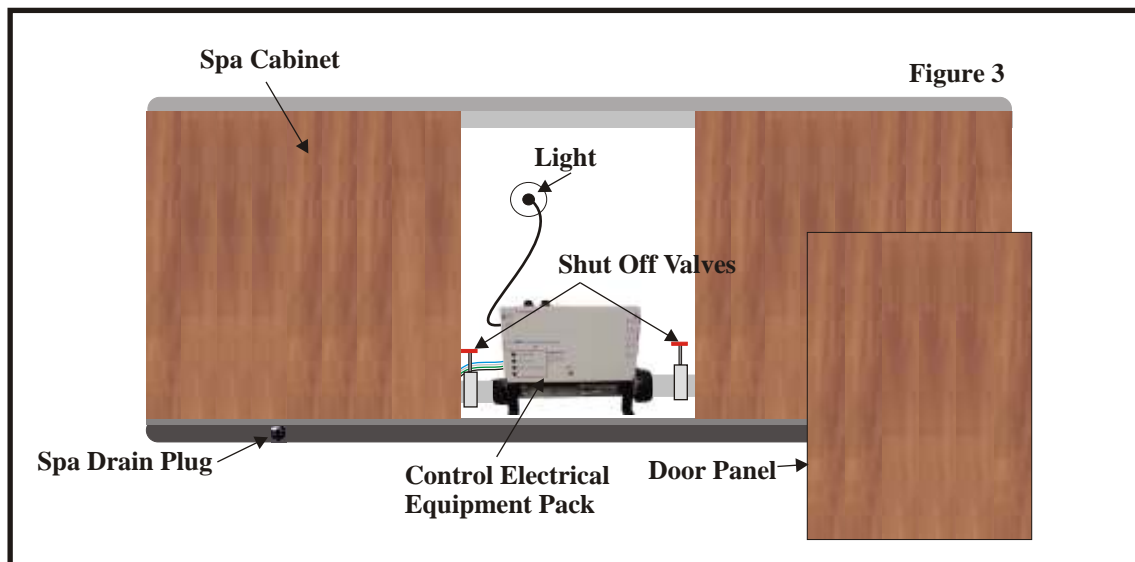
ELECTRICAL WIRING INSTRUCTIONS

IMPORTANT NOTICE:

1. This spa must be permanently connected (hard-wired) to the power supply. No plug-in connections or extension cords are to be used in conjunction with the operation of this spa. Supplying power to the spa which is not in accordance with these instructions will void both the independent testing agency listing and the manufacturer's warranty.
2. The power supplied to this spa must be a dedicated circuit with no other appliances or lights sharing the power provided by the circuit.
3. To determine the current and voltage and wire size required, refer to section "Power Requirements" (Page 4).

Wire size must be appropriate per IEE Wiring Regulations.
All wiring must be copper to ensure proper connections. Do not use aluminum wire.
4. The electrical supply for this product must include a suitable ground fault circuit interrupter (GFCI), or RCD as required by IEE wiring Regulations.
5. To gain access to the spa's power terminal block, remove the screws and cabinet panel setting it aside figure 3 (Page 7), then remove the securing screws from the panel figure 1, (Page 5) from the control equipment pack system.
6. Select the power supply inlet you want to use and remove the cabinet panel from the front of the spa to allow you to feed the cable through to the control box. Install the cable with connector through the conduit on figure 2 , (Page 5).
7. Connect wires, color to color, on terminal blocks as figure (Page 4 - 1 x 32 AMP) , TIGHTEN SECURELY! All wires must be hooked up securely or damage could result.
8. Install control box door panel with screws and reinstall the cabinet side panels.

**SAMPLE ONLY
OF SHUT OFF VALVES.
CONTROL ELECTRICAL
EQUIPMENT PACK MAY
BE LOCATED IN DIFFERENT
LOCATION INSIDE CABINET.**



START-UP INSTRUCTIONS

FILLING THE SPA

Clear all debris from inside the spa. At the factory your spa shell was cleaned and polished, but you may want to treat it with a specially formulated spa cleaner available from your dealer prior to filling it for the first time.

Make sure the spa has been installed correctly, including electrical wiring connections as specified in the wiring diagram, and the spa is level.

Do Not Over Fill. Never fill your spa with water from a water softener, or use hot water while filling. Insure that your spa drain is shut off. Remove your filter lid. Place your garden hose into the filter housing and begin filling with clean water see figure 5 (Page 7). Continue filling spa until the water level is 3 inches above the filter housing see figure 4 (Page 8). Remember every person entering a spa displaces a given volume of water, so **adjust water level to number of people who will be entering spa.**

If your water is extremely “hard”, it is preferable to fill half-way with hard water and the rest of the way with softened water. Or, you may fill the entire spa with hard water if you use a special water additive available from you Hydro Spa dealer.

Always refill spa through one filter housing to purge any trapped air from pump intakes. Failure to do so may cause air to be trapped in either pump #1 or the circulation pumps intake creating an air lock, preventing either pump from circulating water. Insure both shutoff valves are fully open see figure 3 (page 7). Make sure filter cartridge is clean before installing. See “Cleaning the Filter” for specific cleaning procedures (see page 16).

Figure 4



Water Level 3” Above Filter Housing

Filter Housing Assembly

Remove filter lid and rotate top filter housing counterclockwise and remove assembly. Remove filter cartridge upward, and inspect element for cleanliness. With cartridge element removed is the proper way to fill you spa using a common garden hose. Once spa is filled with water 3” above filter housing, re-install filter cartridge and housing assembly locking it back in place replacing filter lid.



Figure 5

START-UP INSTRUCTIONS

Safety Check

Open the cabinet access door panel and check all pump unions to make sure they are hand tight. Loosening can occur during shipping and handling. Check Shut-Off Valves and insure both are open fully, otherwise your pumps will not function (Page 6 Fig 3).

Turn on Power

Turn on power to spa at the circuit breaker box. The heater and pump 1 (low speed) will automatically activate.

Initiating Water Circulation

Depress JETS 1 topside pad on the control panel once to activate pump #1 in high speed and initiate maximum water flow to certain jets.

Depress Aux and Blower Pads on the control panel to activate pumps 2 and blower.

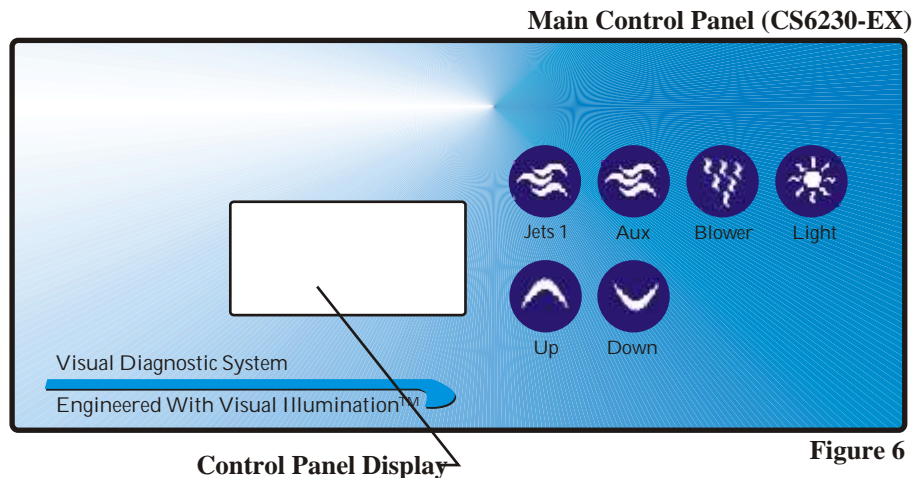
Add Start-Up Chemicals

Add the spa water chemicals as recommended by your Hydrosipa Spa dealer. Refer to (Page 7) for general guidance.

Place Cover On Spa

Keep the insulating cover in place anytime the spa is not in use it will reduce the time required for heating, thereby minimizing operating cost. The time required for initial heat-up will vary depending on the starting water temperature and the capacity of your spa. Smaller spas heat at a rate of approximately 8 to 10 degrees per hour; larger spas heat at about 4 to 6 degrees per hour. Lock cover with safety locks when not in use.

WARNING: RISK OF INJURY. Always check water temperature carefully before entering spa.



Control Panel

Hydrosipa Spas are equipped with a main control panel, located on the side of the spa as show above Figure 6.

The main control panel controls all of the spa functions, and uses indicator lights and an integrated LCD display to aid in determining the status of the spa

Default System Operations: When power is applied, or there is a temporary lost of power, the system will initiate its default programming. The filter cycle will begin 24-hous after the system has been powered up. The filtration cycle will be active for 1-hour and will repeat every 12-hours The temperature will be maintained at 95 degrees F (35 degrees C).



Pump 1 Jets 1: Press this key once to turn Pump 1 on. A second press will turn it off. For dual speed pump operation; Press this key once to turn Pump 1 onto Low speed, press this key a second time to turn Pump 1 onto High speed, a third press will turn the pump off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 1 Icon will appear on the LCD while the pump is running in High speed and flash while it is in Low speed. If the filter icon appears, a filtration cycle has begun and you will not be able to turn the pump off.



Pump 2 Jets 2: (If equipped) Press this key once to turn Pump 2 on. A second press will turn it off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 2 Icon will appear while the pump is running in High speed.

START-UP INSTRUCTIONS



Blower Key. (If equipped) Press this key to turn blower on. A Second press will turn blower off. Blower will run for 20 minutes once you press the blower key unless you turn it off by pressing the blower key a second time. Blower can be used to cool



Light Key: Press this key to turn the light on. A Second press will turn the Light off. The light will automatically shut off after 2 hours. The Light Icon will appear while the light is on.



Temperature Set Keys: Press the Up Arrow key to increase the desired temperature. Press the Down Arrow key to decrease the temperature. The temperature can be adjusted in 1 degree F increments from 59 degree F to 104 degree F (5 degree C to 40 degree C). The new setting will remain on the display for 5 seconds as a confirmation. During this time the Set Point icon will be appear to let you know this is the desired and not the actual temperature. After 5 seconds the display will return to the current temperature reading. When the temperature drops to 1 degree F below the set temperature, the heater will be turned on until the temperature is 1 degree F above the set temperature. The heater icon will appear while the heater is on and flash when there is a call for heat and the heater has not yet been activated.

PROGRAMMING FILTRATION

The filter cycle occurs twice a day (every 12 hours) and the duration is user programmable. Press and hold the Light Key for approximately 5 seconds to display the current duration. Use the Temperature Set Keys to either increase or decrease the duration. The duration can be set from “0” (no filtration) to “12” (24 hours a day). Press the Light Key to save the new setting and to start the filtration cycle. The Filter Indicator will illuminate on the display under the filter icon during an active cycle.

To prevent overheating of the spa water, the filtration cycle will be suspended any time the temperature reaches 2 degrees F (1 degree C) above the set temperature. If the spa water cools to 1 degree F above the set temperature while the filtration cycle is still active (filter indicator flashing) the filtration cycle will reactivate. The filtration cycle will be suspended if the user enters the spa and activates a pump or blower manually. This is to prevent unnecessary operation of the ozonator. The cycle will be suspended for 40 minutes beyond the last manual activation of any accessory. The filter indicator will flash on the display while the filter cycle is suspended.

ADDITIONAL FEATURES

Smart Winter Mode: If the system detects ambient conditions below a present a present factory setting, the system will automatically activate the Smart Winter Mode for a period of 24 hours. In this mode, if a pump has not been powered in the last 2 hours, the system will turn it on for one minute to prevent freezing. The filter Mode light indicator will flash while the pump is running in this mode. Note: If you notice the pump coming on every 2 hours. This is the most likely cause. This will continue for a 24-hour period. This is normal and is the systems protection against freezing.

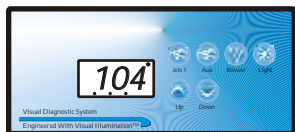
Over Temperature Protection: If the water temperature exceeds 112 degrees F (44 degree C) at the Temperature sensor 3 flashing dots will appear below the temperature display and the heater as well as all other outputs will shut off. After the water has cooled down power to the spa must be cycled on then off to reset the system. If the spa water temperature does not seem to be elevated, the error indication may have been caused by power water flow or electrical line interference (thunder storms, voltage surges, etc.). Simply reset and monitor the system.

ERROR IDENTIFICATION



Three Flashing Dots with Pump Off

Pressure or Flow Switch Activated: If 3 flashing dots appear below the temperature display while there is no pump operating, turn the pump on. If the 3 flashing dots went away this indicates that the pressure or flow switch was activated although there was no water flow. (Contact your spa dealer or manufacturer).



Three Flashing Dots with Pump On

Pressure or Flow Switch Not Activated: If 3 flashing dots appear below the temperature display while the pump(s) is operating, turn the pump(s) off. If the 3 flashing dots went away this indicates that the pressure or flow switch was not activated although there was water flow. Note: A dirty filter limiting the water flow will also cause this error message to appear. (Contact your spa dealer or manufacturer).

ERROR IDENTIFICATION



If the display shows a constant 32 degree F or 125 degree F (0 degree C or 52 degree C) and this is not the actual temperature or the displayed temperature greatly differs from the actual spa water temperature, a problem with the water temperature sensor has occurred. (Contact manufacturer).

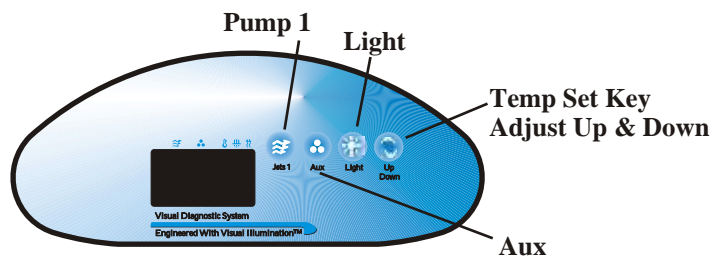


High Temperature

If 3 flashing dots below the temperature display and the temperature displayed is 115 degrees F (46 degree C) or higher, and over temperature condition and a need for service has occurred. (Contact manufacturer).

NOTE: If you notice the pump coming on for seemingly no reason throughout the day, the system may be in “Smart Winter Mode”. If you cannot control some functions of the spa be sure to check to see if the Filtration indicator is illuminated. The spa may be in the midst of a filtration cycle. Freeze Protection and Over temperature condition will also limit or disable spa functions.

START-UP INSTRUCTIONS (CS6200-EX)



Default System Operation: When power is applied, or there is a temporary loss of power, the system will initiate its default programming. The filter cycle will begin 24-hours after the system has been powered up. The filtration cycle will be active for 1-hour and will repeat every 12-hours. The temperature will be maintained at 95° F. (Default setting can change) w/out notice



Pump 1 Key (Jets 1): Press this key once to turn Pump 1 onto Low speed, press this key a second time to turn Pump 1 onto High speed, a third press will turn the pump off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 1 indicator will illuminate while the pump is running. If the filter cycle indicator is illuminated, a filtration cycle has begun and you will not be able to turn the pump off.



Temperature Set Keys: Press the Temperature Set Key Up to increase the desired temperature. Release and press again to lower the temperature. The temperature can be adjusted in 1° F increments from 59° F to 104° F (5° C to 40° C). The new setting will remain on the display for 5 seconds as a confirmation. During this time the Temperature Program indicator will illuminate to let you know this is the desired and not the actual temperature. After 5 seconds the display will return to the current temperature reading. When the temperature drops to 1° F below the set temperature, the heater will be turned on until the temperature is 1° F above the set temperature. The Heater On indicator will illuminate while the heater is on and flash when there is a call for heat and the heater has not yet been activated.



Light Key: Press this key to turn the Light on and off. The light will automatically shut off after 2 hours.



Blower Key: (If equipped) Press blower key to turn blower on. A second press will turn blower off. Blower will run for 20 minutes then shut down.

FILTRATION

PROGRAMMING FILTRATION

Programming Filter Cycles: You may choose to filter the spa 1, 2 or 3 times per day as required to keep the water clean and sanitary. Press and hold the pump key. The current setting will be displayed. Press and hold the Temperature Set Key to increase or decrease the frequency of the filtration cycles per day. The filter cycle is now set. The cycles will repeat every 8, 12 or 24 hours within a 24-hour period starting from the time programmed. It is recommended to schedule the filtration cycles so they do not interfere with sleeping hours.

Programming Filter Cycle Duration: You may choose to filter your spa 60, 120, 180 or 480 minutes per cycle as required to keep the water clean and sanitary. Press both the Light and arrow up key. The current duration of the filter cycle will be displayed. Press and hold the Temperature Set key to increase or decrease the cycle. The duration is now set. To start a filter cycle immediately, press and hold the Light key.

Note: If a Key is not pressed with 5 seconds during programming, the system will revert back to the monitoring mode. If the Pump and/or light were turned on during the programming process, turn them off. The system will revert back to display the water temperature within 5 seconds.

Power Loss: Any interruption of power will cause the unit to reset and revert to the default programming of 95° F set point temperature and 2, 1-hour filtration cycles.

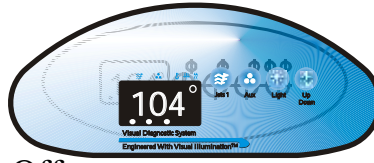
ADDITIONAL FEATURES

Smart Winter Mode: If the system detects ambient conditions below a present factory setting, the system will automatically activate the Smart Winter Mode for a period of 24 hours. In this mode, if a pump has not been powered in the last 2 hours, the system will turn it on for a minute to prevent freezing. The filter Mode light indicator will flash while the pump is running in this mode. **Note:** If you notice the pump coming on every 2 hours. This is the most likely cause. This will continue for a 24-hour period. This is normal and is the systems protection against freezing.

Over Temperature Protection: If the water temperature exceeds 112° F at the Temperature sensor 3 flashing dots will appear below the temperature display and the heater as well as all other outputs will shut off. After the water has cooled down power to the spa must be cycled on then off to reset the system. If the spa water temperature does not seem to elevated, the error indication may have been caused by poor water flow or electrical line interference (thunder storms, voltage surges, etc.). Simply reset and monitor the system.

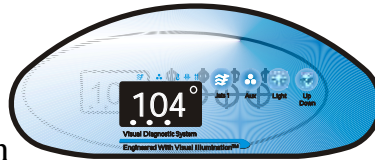
Power-Up Detection: Upon first powering the system or if a power outage occurs, the display will flash until a key is pressed. This feature also lets the user know there has been a power failure.

TOP SIDE ERROR IDENTIFICATION



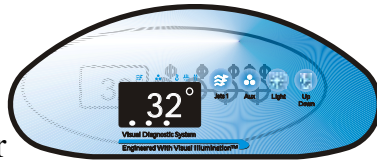
Three Flashing Dots with Pump Off

Pressure or Flow Switch Activated: If 3 flashing dots appear below the temperature display while there is no pump operating, turn the pump on. If the 3 flashing dots went away this indicates that the pressure or flow switch was activated although there was no water flow. (Contact Your Local Dealer for Service)



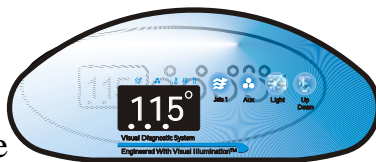
Three Flashing Dots with Pump On

Pressure or Flow Switch Not Activated: If 3 flashing dots appear below the temperature display while the pump is operating, turn the pump off. If the 3 flashing dots went away this indicates that the pressure or flow switch was not activated although there was water flow. Note: A dirty filter limiting the water flow will also cause this error message to appear. (Contact Your Local Dealer for Service)



Temperature Sensor

If the display shows a constant 32 F or 125 F and this is not the actual temperature or the displayed temperature greatly differs from the actual spa water temperature, problem with the water temperature sensor has occurred. (Contact Your Local Dealer for Service)



High Temperature

If 3 flashing dots appear below the temperature display and the temperature displayed is 115 F or higher, and over temperature condition and a need for service has occurred. (Contact Your Local Dealer for Service)

NOTE: If you notice the pump coming on for seemingly no reason throughout the day, the system may be in “Smart Winter Mode”. If you cannot control some functions of the spa be sure to check to see if the Filtration Indicator is illuminated. The spa may be in the midst of a filtration cycle. Freeze Protection and Over Temperature Condition will also limit or disable spa functions.

TROUBLESHOOTING

Nothing Operates

Main Breaker is Off - Set to On.
Sub-Panel Breaker Off - Set to On.
Equipment RCD Off - Set to On.
Power switch in Off position - Set to On
Power cord not plugged in - Plug in power cord.
Over or High Temperature Protection On - Refer to Error Identification (High Temperature)

No, Low Or Surging Water Flow

Air Lock in Plumbing System - "Bleed" the system.
Restricted Flow - Insure that the water shut-off valves are open and that suction fittings are not blocked by debris.
Dirty Filter - Clean or replace filter.
Low Water Level - Increase water level to recommended level.

No Low Speed Pump Operation.

Low Level Programming Incorrect - Contact your local dealer or manufacturer.
Over or High Temperature Protection On - Press button to reset.
Pump Not Plugged-In - Plug in the Pump.

No Jets Or Blower Operation

Blower or Pump Not Plugged-In - Plug in the Blower or Pump.
Over or High Temperature Protection On - Press button to reset.

No Therapy Jet Operation

Water Shut-Off Valves are Closed - Open Shut-Off valves.
Dirty Filter - Clean or replace filter
Jets Not Properly Adjusted - Adjust Jets properly.
Thermal Overload Tripping - Check for restricted flow of water.
Over or High Temperature Protection On - Press button to reset.

Water Leaks

Spa Overfilled - Adjust water level.
Too Many People in the Spa - Adjust water level.
Drain-Valve Left Open - Close drain valve.
Couplings or Unions Loose - Tighten or contact your local dealer, or manufacturer.
Plumbing / Connections Leaking - Contact your local dealer, or manufacturer.
Water in Air Blower Plumbing - Contact your local dealer, or manufacturer.

No Heat

Temperature Not Set Correctly - Adjust Set Point.
Over or High Temperature Protection On - Press button to reset.
Current Limiting On - LC Systems will not heat if High Speed or Blower is on. Contact your local dealer, or manufacturer.
No Power - Reset breaker at service panel.
Low Water Flow - Clean or Replace filter.

High Heat

Temperature Sensor Not in Dry-Well - Place sensor in dry-well.
Temperature Set Too High - Adjust Set Point.
High Ambient Temperature - Remove spa cover.

RCD Trips Occasionally

Lightning or Electrical Storm, Power Surge, Extremely Humid Conditions, or Radio Frequency Interference - Reset GFCI.
NOTE: GFCI must be properly grounded and bonded.

RCD Trips Immediately

Defective Component - Contact a qualified service technician or manufacturer for assistance.

No Light Operation

Light Bulb Defective - Replace bulb or contact your local dealer or manufacturer.
Reflector has Fallen Off - Replace deflector or contact your local dealer or manufacturer.
Light Not Plugged-In - Plug in the Light.

SPA CARE AND MAINTENANCE

Draining Your Spa

Remove screws from cabinet panel door and set aside as shown below.

- Turn power off
- Select a safe suitable drainage capable of safely assimilating 300 plus gallons of water, which may contain both unsanitary contaminants and chemical residue that could cause harm to plants or grass.
- Twist the drain fitting counter clockwise to open valve.
- The spa will drain by gravity flow.
- Close the disconnect drain fitting clockwise to close valve.
- Refill the spa through the filter shown on figure 5 (Page 7) before restoring power.

Filter Cleaning and Cartridge Replacement

The filter(s) in your spa should be cleaned at least every 5-6 weeks, depending on spa usage. This will ensure that the water is being filtered properly, and there is no restriction in the filter due to dirt and grease build-up.

Cleaning the filter can be done easily using a Filter Degreaser solution and following the directions on the bottle. Soak filter in a degreaser and power wash with a garden hose. It is recommended to have a second filter, which can be cleaned between filter changes. This will enable you to quickly exchange the dirty filter with a clean filter and immediately start your spa up again.



Filter Element

Care Of The Exterior

Spa Shell

Your spa shell is made of acrylic. Stains and dirt generally will not adhere to the surface. Using a soft rag or a nylon scrubber should easily remove most dirt. Most household chemicals are harmful to your spa's shell. See your dealer for the best product to use. The only products which have passed the manufacturer's test are Soft Towel and Windex. Sodium bicarbonate (baking soda) can also be used for minor surface cleaning. Always thoroughly rinse off any spa shell cleaning agent with fresh water.

NOTES: Iron and copper in the water can stain the spa shell if allowed to go unchecked. Ask your Hydro Spa dealer about a stain and scale inhibitor to use if your spa water has a high concentration of dissolved minerals.

The use of alcohol or any household cleaners other than those listed to clean the spa shell surface is **NOT** recommended. **DO NOT** use any cleaning products containing abrasives or solvents since they may damage the shell surface. **NEVER USE HARSH CHEMICALS!** Damage to the shell by the use of harsh chemicals is not covered under the warranty.

IMPORTANT: Some surface cleaners contain eye and skin irritants. Keep all cleaners out of the reach of children and use care when applying.

Maintenance Free Cabinet

Hydro Spa's consists of a rigid polymer that combines the durability of plastic with the beauty of redwood or gray looking cabinet. Cabinet will not crack, peel, blister or delaminate. Cleaning consists of simply spraying the cabinet with a mild soap and water solution to remove any stains and residue.

Care Of Spa Cover

To clean and condition the vinyl cover:

- Remove the cover from the spa and gently lean it up against a wall or fence.
- Using a garden hose, spray the cover to loosen and rinse away any dirt or debris.
- Using a sponge and/or a soft bristle brush, and using a very mild soap solution (one teaspoon dishwashing liquid with two gallons of water), or baking soda (sodium bicarbonate), scrub the vinyl top in a circular motion. Do not let the vinyl dry with a soap film on it before it can be rinsed clean.
- Scrub the cover's perimeter and side flaps. Rinse clean with water.
- Rinse off the underside of the cover with water only (use no soap), and wipe it clean with a dry rag.
- To condition the cover after cleaning, apply a thin film of vinyl cleaner to the surface and buff to a high luster.

Important reminders:

- DO NOT walk or stand on top of cover (unless you own a "walk-on-cover").
- DO remove snow buildup to avoid breakage of the foam core from the additional weight of the snow.
- DO lock cover locking straps to secure the cover when the spa is not in use.
- DO NOT drag or lift the spa cover using either the flaps, or the cover lock straps.

SPA CARE AND MAINTENANCE

Vacation Care Of Spa

Following these instructions to ensure that the water quality of your spa is maintained:

For Short Periods (3 to 5 days)

Adjust the pH
Sanitize the water
Lock cover for safety

For Long Periods (5 to 14 days)

Set temperature to its lowest level approximate water temperature of 80°F.
Adjust the pH
Sanitize the water
Lock cover for safety

Return Procedures

Sanitize the water following shock procedures
Return water temperature to original setting
Insure chlorine level had dropped below 5.0 ppm

NOTE: If you plan on not using your spa for periods exceeding 14 days, you may ask a family member or neighbor to assist with your spa maintenance, and if not available you will need to drain or winterize spa.

Winterizing Your Spa

During the cold weather you may not wish to use your spa outside. In this case you may move it to a heated area, or leave it until the weather warms up.

WARNING: Allowing your spa water to freeze will cause severe damage to the spa shell, equipment, and plumbing and **WILL VOID WARRANTY.**

The following steps should protect your spa from freezing:

- Disconnect the spa from the power supply.
- Remove the screws holding your spa excess panel door.
- Open the valve and the spa will drain by gravity flow.
- Remove the filter cartridge, then clean and store in a dry place.
- Attach a wet/dry shop vac (capable of blowing air as well as vacuuming) into the filter housing.
- Turn blower on and allow it to blow out any water remaining in the plumbing lines. (Should take no more than 5 minutes).
- Reinstall the filter housing.
- Use the shop vac to remove water inside spa blown through jets.
- Use a shop vac and clean towel and remove any remaining water from bottom of spa until dry.
- Leave the drain open.
- Close the spa cover and fasten with tie down safety loks.

WATER QUALITY AND MAINTENANCE

Your Water In Your Spa

The quality of your water in your spa is important to keeping it clean. Your dealer can guide you through the process of achieving and maintaining perfect water in your spa in your given local conditions. Your program will vary depending on your water's mineral content, and how often you use your spa, and the amount of people using it.

Here are our suggested step-by-step procedures:

General Information - The three fundamental areas of water maintenance.

* Water Filtration * Chemical Balance/pH Control * Water Sanitation

Water sanitation is the responsibility maintaining quality clean water is your's, but achieved through the regular and periodic (daily), if necessary addition of an approved sanitizer. The sanitizer will chemically control the bacteria and viruses present in the fill water or introduced during the use of the spa. Bacteria and viruses can grow quickly in undersanitized spa water.

The water's chemical balance and pH control are also your responsibility. You will have to add chemicals to maintain proper levels of Total Alkalinity (TA), Calcium Hardness (CH) and pH. Proper water balance and pH control will minimize scale buildup and corrosion of metals, extend the life of the spa, and allow the sanitizer to work at maximum efficiency.

Methods For Testing Spa Water

Accurate water testing and analysis are an important part of effectively maintaining your spa water. You must have the ability to test for:

- Total Alkalinity (TA)
- pH
- Calcium Hardness (CH)
- Sanitizer

Two types of testing methods are recognized and recommended:

- **Reagent Test Kit** is a method which provides a high level of accuracy. They come in either liquid or tablet form.
- **Test Strips** are a convenient testing method used by many spa owners. Keep in mind that test strips are susceptible to heat and moisture.

Basic Chemical Safety

When using chemicals, always read the labels carefully and follow directions. Though chemicals protect you and your spa when used correctly, they can be hazardous in concentrated form. Observe the following guidelines:

- Allow only a responsible person to handle spa chemicals **KEEP OUT OF THE REACH OF CHILDREN.**
- Accurately measure the exact quantities specified, never more. Do not overdose your spa.
- Handle all containers with care. Store in a cool, dry well ventilated place.
- Always keep chemical containers closed when not in use. Replace caps on their proper containers.
- Don't inhale fumes, or allow chemicals to come in contact with your eyes, nose, or mouth. Wash your hands immediately after each use.
- Follow the emergency advice on the product label in case of accidental contact, or if the chemical is swallowed. Call a doctor or the local Poison Control Center. If a doctor is needed, take the product container along with you so that the substance can be identified.
- Don't let chemicals get on surrounding surfaces or landscaping. Rinse off with fresh water if spilled.
- Never smoke around chemicals. Some of the fumes can be highly flammable.
- Don't store chemicals in the spa equipment compartment.

Adding Spa Chemicals:

- Fold back the spa cover. Carefully remove and set aside the filter lid.
- Push the **JETS1** button to turn on the pump.
- Carefully measure the recommended amount of chemical and slowly pour it into the filter compartment. Use care not to splash chemicals on your hands, eyes, or on the spa shell surface or cabinet.
- Replace filter lid and run spa for 10 minutes on high speed. Re-install spa cover.

IMPORTANT: Super Chlorination/Non-Chlorine Shock Treatment - **NOTE:** After administering a super chlorination treatment or non-chlorine shock to your spa, leave the cover open for a minimum of 20 minutes to allow the oxidizer gas to vent. A high concentration of trapped oxidizer gas which may exist as a result of the shock treatment (not daily sanitation) may eventually cause discoloration or vinyl degradation to the bottom of the cover. This type of damage is considered chemical abuse and is not covered under the terms of the limited warranty of the spa cover.

WATER QUALITY AND MAINTENANCE

Balancing Total Alkalinity (TA)

- The recommended Total Alkalinity (TA) for your spa water is 125-150 ppm.
- Total Alkalinity is a measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA is referred to as the water's "pH buffer". It's a measure of the ability of the water to resist changes in pH level.
- If the TA is too low, the pH level will fluctuate widely from high to low. Fluctuations in pH can cause corrosion or scaling of spa components. Low TA can be corrected by adding pH/Alkalinity UP (sodium hydrogen carbonate).
- If the TA is too high, the pH level will tend to be high and may be difficult to bring down. It can be lowered by adding pH/Alkalinity down (sodium bisulfate).
- Once the TA is balanced, it normally remains stable, although the addition of more water with a high or low alkalinity will raise or lower the TA reading of the water.
- When the Total Alkalinity is within the recommended range, proceed.

Balancing Calcium Hardness (CH)

- The recommended Calcium Hardness (CH) level for your spa is 150-200 ppm.
- Calcium Hardness is a measure of the total amount of dissolved calcium in the water. Calcium helps control the corrosive nature of the spa's water. That's why calcium-low water (commonly known as "soft" water) is not recommended. It is very corrosive to the equipment, and can cause staining of the spa shell. If the calcium level is too low, we recommend using Calcium Increaser to bring the calcium hardness level to within the recommended range.
- If the CH is too high (commonly known as "hard" water), formation of scale on the spa's shell surface and equipment can result. CH can be decreased by dilution - a mixture of 75% hard and 25% soft water will be a good starting point. If soft water is not available, or practical for you, a stain and scale control such as Scale Defense should be added to the spa water, according to instructions on its label.
- Once the CH is balanced, it normally remains stable, although the addition of more water with a high or low calcium content will raise or lower the CH reading of the water.
- When the Calcium Hardness is within the recommended range, proceed.

Balancing The pH

- The recommended pH level for your spa water is 7.4-7.6.
- The pH level is the measure of acidity and alkalinity. Values above 7 are alkaline; those below 7 are acidic.

Maintaining the proper pH level is extremely important:

- Optimizing the effectiveness of the sanitizer.
- Maintaining water that is comfortable for the user.
- Preventing equipment deterioration.

If the spa water's pH level is too low, the following may result:

- The sanitizer will dissipate rapidly.
- The water may become irritating to spa users.
- The spa's equipment may corrode.

If the pH level is too low, it can be increased by adding pH/Alkalinity Up (sodium hydrogen carbonate) to the spa water.

If the pH level is too high, the following may result:

- The sanitizer is less effective.
- Scale will form on the spa shell surface and the equipment.
- The water may become cloudy.
- The filter cartridge pores may become obstructed.

If the pH is too high, it can be decreased by adding pH/Alkalinity Down (Sodium bisulfate) to the spa water.

NOTE: After adding pH/Alkalinity Up (sodium hydrogen carbonate) or pH/Alkalinity Down (sodium bisulfate), wait at least two hours before testing the water for pH. Measurements taken too soon may not be accurate.

- It is important to check the pH on a regular basis. The pH will be affected by the bather load, the addition of new water, the addition of various chemicals, and the type of sanitizer used.
- When the pH is within the recommended range, proceed.

WATER QUALITY AND MAINTENANCE

Maintaining Sanitizer Level

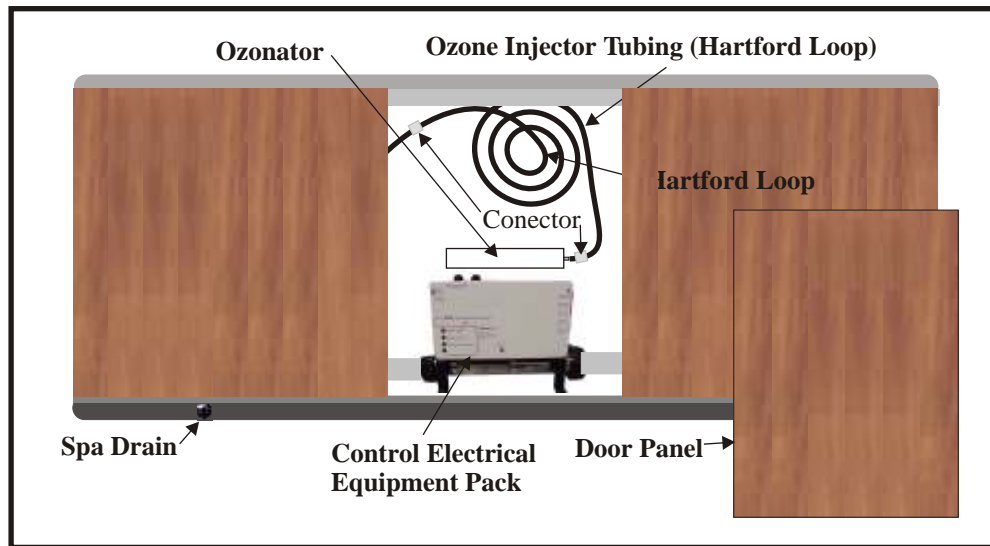
- Sanitizer is extremely important for killing algae, bacteria and viruses, and preventing unwanted organisms from growing in the spa. At the same time, you don't want too high a sanitizer level, or it can irritate your skin, lungs, and eyes.
- Always maintain the sanitizer level in your spa at the recommended level for each type of sanitizer.

Ozone

Hydro Spa's Ozonation System drastically reduces the use of chemicals in the water. This also aids in maintenance requiring less attention from harsh chemicals and less frequency with which they are used.

Replacement Of Ozone Tubing and Ozonator

Call your manufacture to provide you with maintenance service if replacement of ozonator or tubing is required. Remove door panel screws and set door panel aside. The Ozone is setting above the Control Electrical Equipment Pack shown below or in area. The ozonator plugs into the Control Electrical Equipment Pack. Tubing is mounted above the ozonator and has a Hartford Loop as shown below.



Water Terminology

Bromamines: Compounds formed when bromine combines with nitrogen from body oils, urine, perspiration, etc. Unlike chloramines, bromamines have no pungent odor, and are effective sanitizers.

Bromine: A halogen sanitizer (in the same chemical family as chlorine). Bromine is commonly used in stick, tablet, or granular form.

Calcium Hardness: The amount of dissolved calcium in the spa water. This should be approximately 150-220 ppm. High levels of calcium can cause cloudy water and scaling. Low levels can cause harm to the spa equipment.

Chloramines: Compounds formed when chlorine combines with nitrogen from body oils, urine, perspiration, etc. Chloramines can cause eye irritation as well as having a strong odor. Unlike bromamines, chloramines are weaker, slower sanitizers.

Chlorine: An efficient sanitizing chemical for spas.

Chlorine (or Bromine) Residual: The amount of chlorine or bromine remaining after chlorine or bromine demand has been satisfied. The residual is, therefore, the amount of sanitizer which is chemically available to kill bacteria, viruses and algae.

Corrosion: The gradual wearing away of metal spa parts, usually caused by chemical action. Generally, corrosion is caused by low pH or by water with levels of TA, CH, pH or sanitizer which are outside the recommended ranges.

DPD: The preferred reagent used in test kits to measure the Free Available Chlorine.

Halogen: Any one of these five elements: fluorine, chlorine, bromine, iodine, and astatine.

MPS: Monopersulfate is the non-chlorine oxidizer used with the purification system.

Nitric Acid: The formulation of nitric acid, a highly corrosive chemical, is a byproduct of the ozone generating process. Nitric acid is produced in very small quantities and is readily dissolved in the water stream with ozone.

Oxidizer: The use of an oxidizing chemical is to prevent the buildup of contaminants, maximize sanitizer efficiency, minimize combined chlorine and improve water clarity.

Ozone: Ozone is a powerful oxidizing agent which is produced in nature and artificially by man. Ozone forms no byproducts of chloramines (ozone actually oxidizes chloramines) and will not alter the water's pH.

Pathogen: A microorganism such as bacterium that cause disease.

pH: The measure of the spa water's acidity and alkalinity. The recommended pH for the spa water is 7.4 to 7.6. Below 7.0 (considered neutral), the spa water is too acidic and can damage the heating system. Above 7.8, the water is too alkaline and can result in cloudy water, and scale formation on the shell and heater.

WATER QUALITY AND MAINTENANCE

Reagent: A chemical material in liquid, power, or tablet form for use in chemical testing.

Sanitizer: Sanitizers are added and maintained at recommended residuals to protect bathers against pathogenic organisms which can cause disease and infection in spa water.

Scale: Rough calcium-bearing deposits that can coat spa surfaces, heaters, plumbing lines, and clog filters. Generally, scaling is caused by mineral content combined with high pH. Additionally, scale forms more readily at higher water temperatures.

SPA WATER MAINTENANCE & TROUBLESHOOTING		
Problem	Probable Causes	Solutions
Cloudy Water	Dirty Filter/s Excess oils / organic matter Improper sanitization Suspended particles / organic matter Overused or old water	Clean filter or replace. Shock spa with sanitizer. Add sanitizer. Adjust pH and/or alkalinity Run jet pump(s) and clean filter. Drain and refill spa.
Water Odor	Excessive organics in water Improper sanitization Low pH	Shock spa with sanitizer. Add sanitizer. Adjust pH to recommended range.
Chlorine Odor	Chloramine level too high Low pH	Shock spa with sanitizer Adjust pH to recommended range.
Musty Odor	Bacteria or algae growth	Shock spa with sanitizer - if problem is visible or persistent, drain, clean and refill spa.
Organic buildup / scum ring around spa	Build-up of oils and dirt	Wipe off scum with clean rag - if severe, drain the spa, use a spa surface and tile cleaner to remove the scum, and refill spa.
Algae Growth	High pH Low sanitizer level	Shock spa with sanitizer and adjust pH Shock spa with sanitizer and maintain sanitizer level.
Eye Irritation	Low pH Low sanitizer level	Adjust pH. Shock spa with sanitizer and maintain sanitizer level.
Skin Irritation / Rash	Unsanitary water Free chlorine level above 5 ppm	Shock spa with sanitizer and maintain sanitizer level. Allow free chlorine level to drop below 5 ppm.
Stains	Total alkalinity and/or pH too low High iron or copper in source water	Adjust total alkalinity and/or pH. Use a metal deposit inhibitor.
Scale	High calcium content in water - total alkalinity and pH too high	Adjust total alkalinity and pH - If scale requires removal, drain the spa, scrub off the scale, refill the spa and balance the water.

SPA CARE AND MAINTENANCE RECORD

Date	Drain & Clean Spa	Spray Clean or Soak Filter Element	Replace Filter Element	Winterize Spa	Clean & Condition Vinyl Cover	Clean Cabinet	Service

Notes: _____

MANUFACTURE RESERVES THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE.

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